



ZIMBABWE SCHOOL EXAMINATIONS COUNCIL
General Certificate of Education Ordinary Level

PHYSICS

PAPER 1 Multiple Choice

4023/1

1 hour

JUNE 2024 SESSION

Additional materials:

Multiple Choice answer sheet

Soft clean eraser

Soft pencil (type B or HB is recommended.)

Electronic calculator

INSTRUCTIONS TO CANDIDATES

Answer **all** questions. For each question, there are **four** possible answers, **A, B, C** and **D**.
Choose the correct answer. Record your choice in **soft pencil** on the separate answer sheet.

Read very carefully the instructions on the answer sheet.

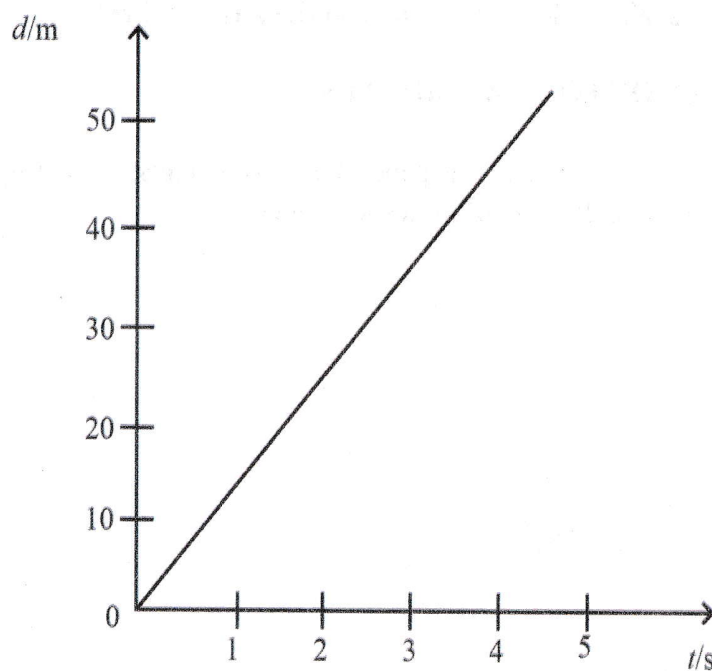
INFORMATION FOR CANDIDATES

There are **forty** questions in this paper. Each correct answer will score **one** mark. Any rough working should be done on this question paper.

This question paper consists of 17 printed pages and 3 blank pages.

Copyright: Zimbabwe School Examinations Council, J2024.

1. The SI unit of pressure is
- A Atmospheres.
 - B Newtons.
 - C Pascals.
 - D mmHG.
2. Which quantity has units of kgm/s^2 ?
- A pressure
 - B force
 - C work
 - D power
3. The diagram shows the variation of distance with time of an object in motion.

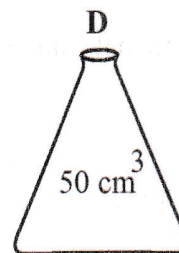
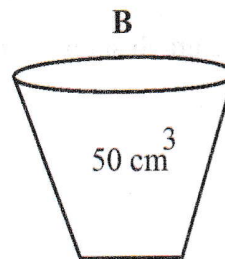
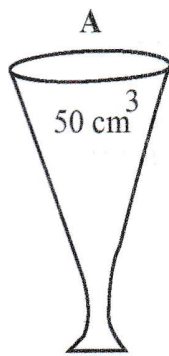


The object is

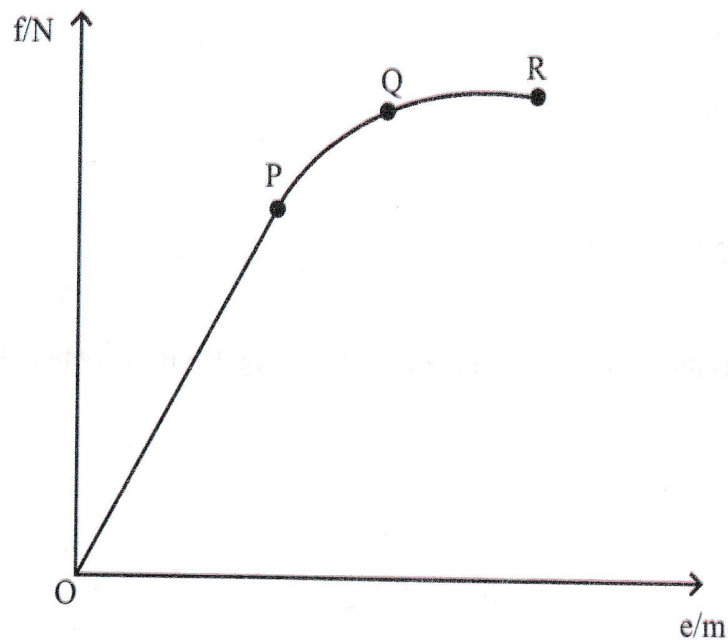
- A accelerating.
- B decelerating.
- C moving with uniform speed.
- D moving with uniform displacement.



4. What is the mass of a body whose momentum is 1000 kgm/s and is travelling at a velocity of 20 m/s ?
- A $20\,000 \text{ kg}$
B $1\,000 \text{ kg}$
C 50 kg
D 0.02 kg
5. Which is the most stable container considering that they contain the same volume of water?



6. The graph shows a force-extension variation for a loaded spring.



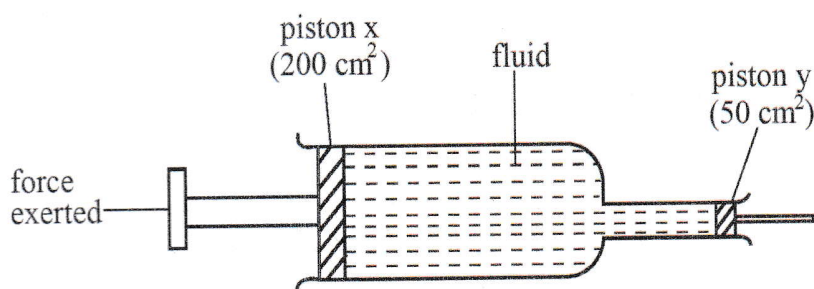
Which part of the graph shows material obeying Hooke's Law?

- A OP
 - B PQ
 - C QR
 - D OR
7. The force needed to make an object move in a circle is the
- A pulling force.
 - B gravitational force.
 - C centripetal force.
 - D turning force.

8. Which one does **not** affect pressure below the surface of a liquid?

- A density of liquid
- B surface area of liquid
- C gravitational field strength
- D depth of point below liquid surface.

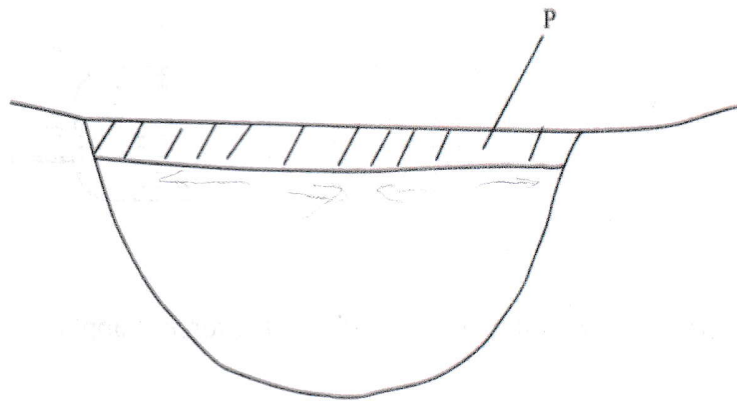
9. The diagram shows a hydraulic system.



What is the force exerted on piston y if a 100 N force is applied on piston x?

- A 25 N
 - B 100 N
 - C 400 N
 - D 1 000 000 N
10. Two pieces of wood can be joined by using
- A riveting. ✓
 - B soldering. ✓
 - C brazing. ✗
 - D dowelling.

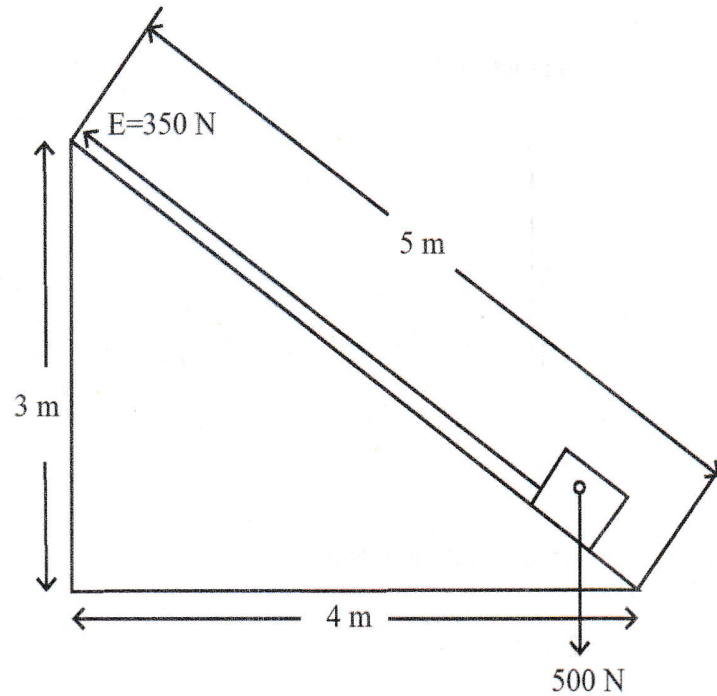
11. A truss is a
- A supporting framework.
 - B supporting beam.
 - C collection of ties only.
 - D collection of struts only.
12. The diagram shows a beam bridge.



Which statement is true about a beam bridge?

- A It experiences tensional forces only when loaded. ✓
 - B It experiences compressional forces only when loaded. ✗
 - C It is simple to construct over a wide span
 - D It is simple to construct over a narrow span.
13. A carburettor
- A only filters air.
 - B only filters fuel.
 - C is found in a petrol engine.
 - D is found in a diesel engine.

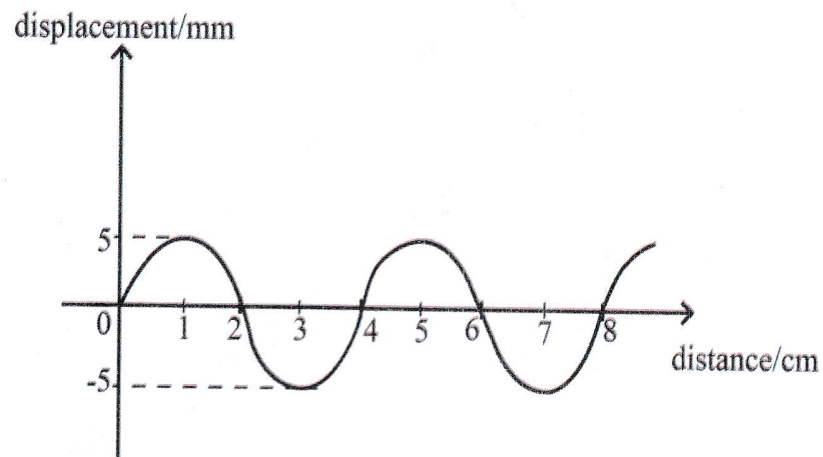
14. The diagram shows an inclined plane.



What is the velocity ratio?

- A 0.6
- B 0.7
- C 1.4
- D 1.7 ✓

15. The diagram shows a wave profile.



Which statement is true about the wave?

- A Its period is 3.2 s.
 - B Its period is 5 s.
 - C Its wavelength is 5 mm.
 - D Its wavelength is 4.0 cm.
16. A swimming pool looks shallower than its real depth because light from the bottom surface
- A is reflected away from the normal.
 - B is refracted away from the normal.
 - C is refracted towards from the normal.
 - D is reflected towards the normal.
17. X-rays are used in
- A communication.
 - B cooking.
 - C remote sensing.
 - D security alarms.

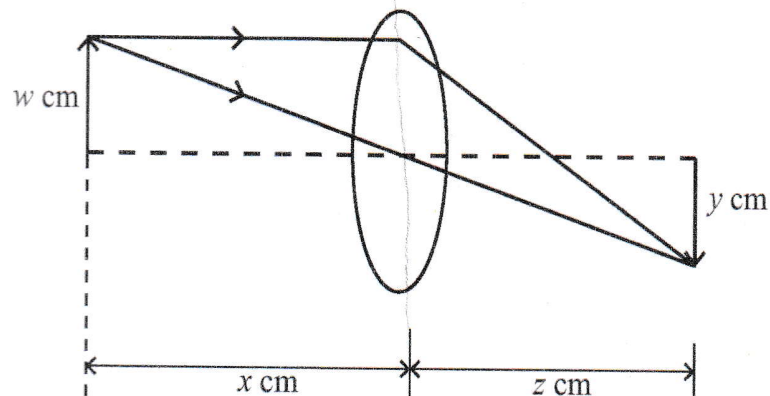
18. Which property of sound does **NOT** change when travelling in different media?

- A speed *
- B wavelength ✓
- C frequency ✓
- D amplitude *

19. Which is **not** an application of wave echoes?

- A electronic tape measure
- B instrument sterilisation
- C sonar instruments ✓
- D metal flaw detection ✓

20. The ray diagram was drawn to determine magnification.



Which ratio gives the magnification?

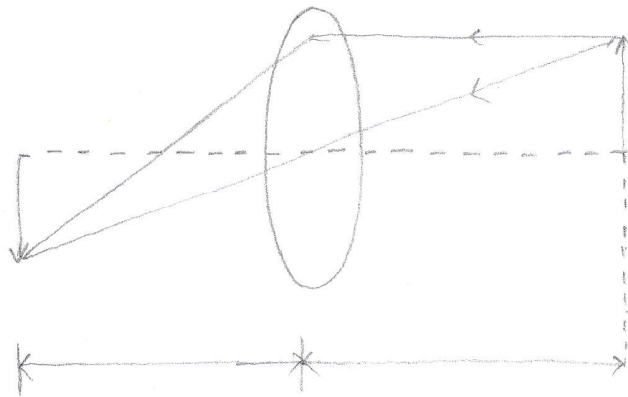
- A $\frac{w}{x}$
- B $\frac{w}{z}$
- C $\frac{z}{x}$
- D $\frac{x}{y}$

21. Which process occurs at all temperatures?

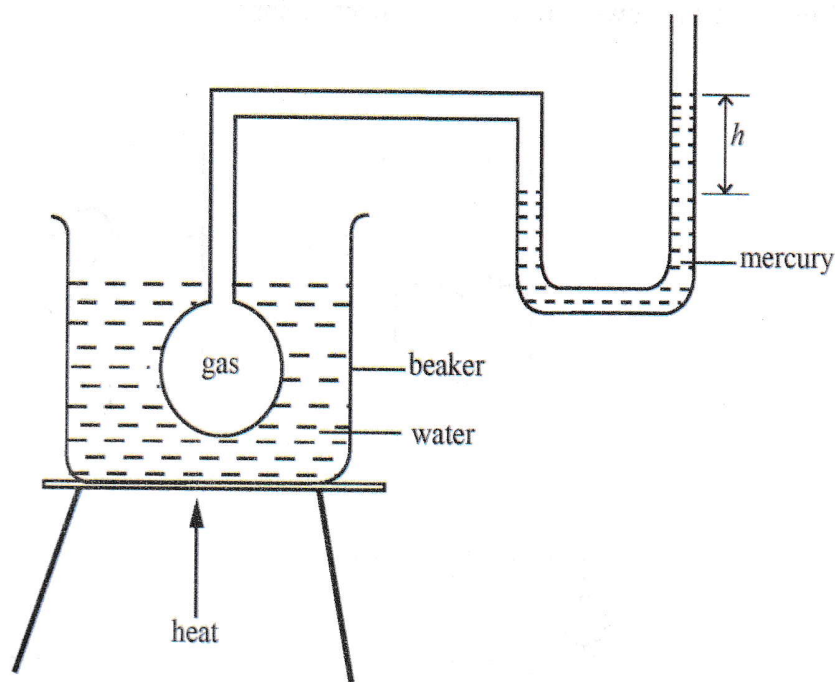
- A boiling
- B melting
- C freezing
- D evaporation

22. Heat capacity is the

- A heat energy gained by a material.
- B heat energy lost by a material.
- C heat energy per unit mass.
- D heat energy per unit temperature.



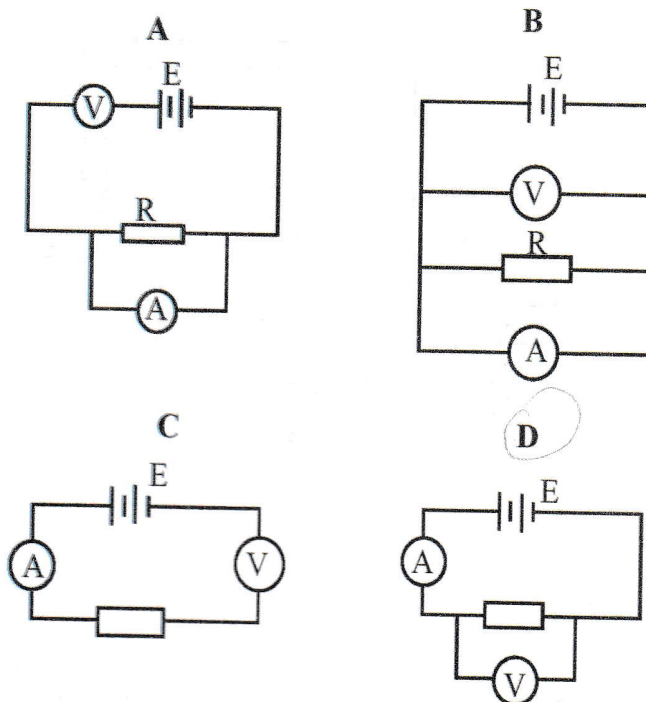
23. The setup was used to investigate gas laws.



Which property / properties of a gas is being investigated?

- A volume and pressure
 - B temperature only
 - C pressure and mass
 - D mass only
24. A lightning conductor consists of
- A an insulator that repels lightning.
 - B a conductor that repels lightning.
 - C an insulator that conducts lightning to the ground.
 - D a conductor that conducts lightning to the ground.
25. When current flows in a light bulb, which quantity is used up?
- A charge
 - B energy
 - C resistance
 - D current

26. Which circuit shows correct arrangement of apparatus?



27. The supply voltage is 230 V.
Which fuse rating can be used for a 2200 W stove?

- A 5 A
B 9 A
C 10 A
D 13 A

$$\text{Power} = VI$$

$$= 230 = \frac{2200}{I}$$

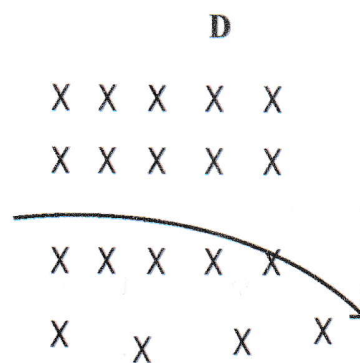
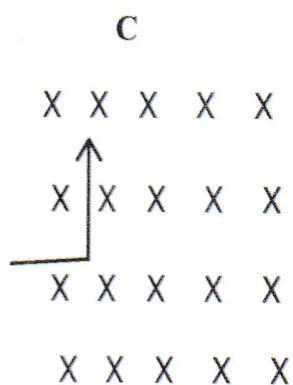
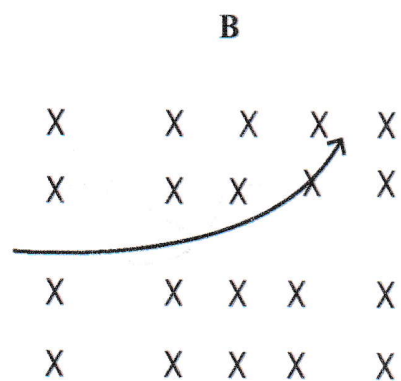
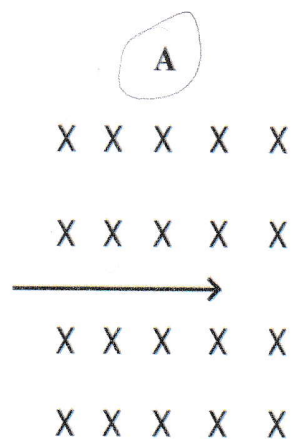
$$I = \frac{2200}{230}$$

$$I = 9.56$$

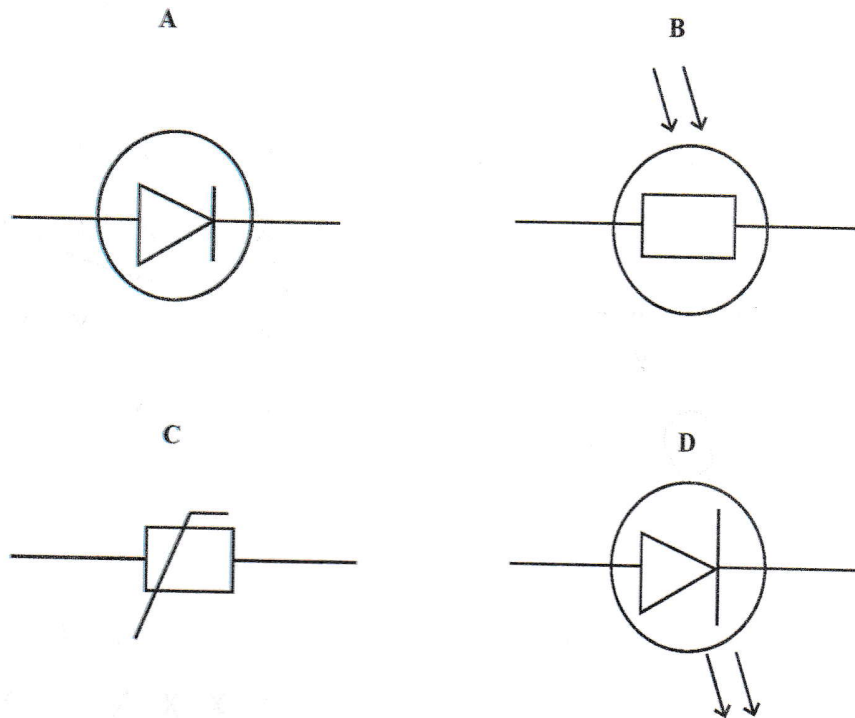
28. Which one improves the efficiency of a transformer?

- A lamination
B use of oil
C use of soft iron
D use of thin coils

29. Which diagram correctly shows the deflection of electrons in a magnetic field?



30. Which symbol represents a light emitting diode?



31. Rectification is

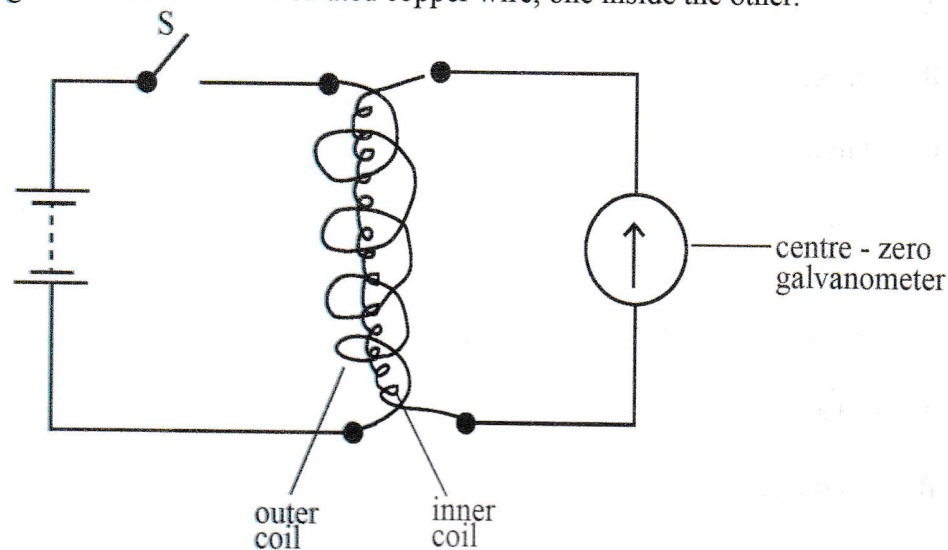
- A conversion of A.C to D.C.
- B conversion of D.C to A.C.
- ☒ C conversion of high voltage to low voltage.
- D conversion of low voltage to high voltage.

32. The use of a capacitor on the output of rectified current is to

- ☒ A increase the current.
- B decrease current.
- C decrease the rippling effect.
- D increase the rippling effect.

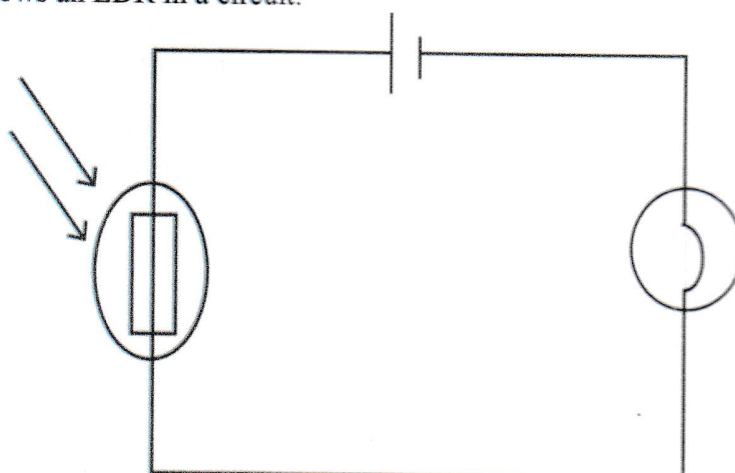
33. The best material for making a permanent magnet is
- ☒ A iron.
 - B copper.
 - C chrome.
 - D steel.
34. Magnetism is not used in
- A audio players.
 - B electric bells. ✓
 - C CD players. ✓
 - D telephones. ✓
35. Which one will not increase the induced emf in a generator?
- A increasing speed of motion
 - B increasing number of turns on the coil
 - C increasing strength of the magnet
 - ☒ D increasing separation of poles

36. The diagram shows coils of insulated copper wire, one inside the other.



When switch, S is closed the pointer of the centre zero galvanometer

- ☐ A deflects momentarily.
 - ☐ B oscillates.
 - ☐ C stays deflected.
 - ☐ D does not deflect at all.
37. The diagram shows an LDR in a circuit.



The circuit can be used for

- ☐ A lighting the bulb when it is dark.
- ☐ B lighting the bulb on and off repeatedly.
- ☐ C lighting the bulb during the day.
- ☐ D lighting the bulb during the day and night.

38. The diagram shows a truth table for a logic gate.

Input A	Input B	Output
0	0	1
0	1	1
1	0	1
1	1	0

Which logic gate is represented by the truth table?

- ☒ A AND
☐ B NAND
☐ C OR
☐ D NOR
39. Which one is a balanced decay equation?

- A ${}_{88}^{288}\text{X} \longrightarrow {}_{88}^{229}\text{Y} + {}_{-1}^0\beta + \text{energy}$
 B ${}_{88}^{228}\text{X} \longrightarrow {}_{89}^{228}\text{Y} + {}_1^0\beta + \text{energy}$
☒ C ${}_{88}^{228}\text{X} \longrightarrow {}_{89}^{228}\text{Y} + {}_{-1}^0\beta + \text{energy}$
 D ${}_{88}^{228}\text{X} \longrightarrow {}_{88}^{228}\text{Y} + {}_1^0\beta + \text{energy}$

40. A radioactive sample has a mass of 60 g and a half life of 30 minutes.

What is the mass remaining after 90 minutes?

- A 7.5 g
 B 10 g
 C 20 g
☒ D 30 g

60
60
30 60 90

